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EDUCATION

- Ph.D. 1982, Atmospheric Sciences, University of Washington
- B.S. 1977, Meteorology, San Jose State University

PROFESSIONAL EXPERIENCE

- 1996-present, Professor, Meteorology, University of Utah
- 2002-2006, Director, NOAA Cooperative Institute for Regional Prediction, University of Utah
- 1996-1998, Acting Director, NOAA Cooperative Institute for Regional Prediction, University of Utah
- 1990-1996, Associate Professor, Meteorology, University of Utah
- 1986-1990, Assistant Professor, Meteorology, University of Utah
- 1982-1986, Assistant Research Professor, Scripps Institution of Oceanography

RESEARCH ACTIVITIES

My research is centered on the observation and analysis of weather and climate processes in mountainous regions. Building on a decade of applied research within the framework of the NOAA Cooperative Institute for Regional Prediction, the Mountain Meteorology Group has now been established as a center of excellence within the Department of Meteorology. My current research activities include further development of MesoWest (see http://www.met.utah.edu), which provides access to surface weather observations for operational, research, and educational applications. MesoWest has evolved since 1996 from providing weather information at a few dozen weather stations in northern Utah to the current availability of weather conditions at thousands of stations around the nation using a state-of-the-art database and dozens of tabular and graphical displays. The MesoWest observations also provide a foundation from which to conduct research to improve data assimilation techniques over complex terrain. I participate in a National Weather Service effort to develop a mesoscale Analysis of Record and its prototype the Real Time Mesoscale Analysis. I also am involved in research related to the Great Salt Lake, including the causes and impacts of interannual variations in the level, salinity, and temperature of the Lake.

AWARDS

- Fellow of the American Meteorological Society 2002
- Outstanding Service Award, National Weather Service Western Region, "For outstanding service to the weather support group for the 2002 Olympic Winter Games" 2002
- College of Mines and Earth Sciences Outstanding Teacher Award 1993-94

COURSES TAUGHT DURING THE PAST TEN YEARS

- Meteorology 1010: Severe and Unusual Weather
- Meteorology 1020: Climate Change: An Atmospheric Perspective (course developer)
- Meteorology 2810: Undergraduate Seminar
- Meteorology 3000/Geography 3280: Mountain Weather and Climate (course developer)
- Meteorology 3410: Weather Analysis and Prediction I (course developer)
- Meteorology 3510: Weather Analysis and Prediction II (course developer)
- Meteorology 5120/6120: Applied Mathematics and Statistics for Environmental Scientists
- Meteorology 5140/6140: Mesoscale and Radar Meteorology
- Meteorology 5540: Synoptic Meteorology II
- Meteorology 5550: Mountain Meteorology (co-course developer)
- Meteorology 6010: Fundamentals of Dynamic Meteorology
- Math 6790: Case Studies in Computational Engineering and Science

REFEREED PUBLICATIONS

Texts and Book Chapters

Horel, J. D., and J. E. Geisler, 1996: Global Environmental Change: An Atmospheric Perspective. 165 pp. John Wiley and Son.

Horel, J., 2003: Terrain-forced mesoscale circulations. Handbook of Weather, Climate, and Water: Dynamics, Climate, Physical Meteorology, Weather Systems, and Measurements. Edited by T. Potter and B. Colman. Wiley and Sons. 562-573.

Journal Publications

Myrick, D., and J. Horel 2007: Sensitivity of surface analyses over the western United States to RAWS observations. *Wea. Forecasting*. Accepted.

Zumpfe, D., J. Horel, 2007: Lake-breeze fronts in the Salt Lake Valley.J. Appl. Meteor., 46- 196-211.

Myrick, D., J. Horel, 2006: Verification over the Western United States of Surface Temperature Forecasts from the National Digital Forecast Database. Wea. Forecasting, 21, 869-892.

Horel, J., B. Colman, 2005: Meeting Summary: A Community Meeting on Real-Time and Retrospective Mesoscale Objective Analysis: An Analysis of Record Summit. *Bull. Amer. Meteor. Soc.*, 86, 1477–1480.

Myrick, D., J. Horel, S. Lazarus, 2005: Local Adjustment of the Background Error Correlation for Surface Analyses over Complex Terrain. *Wea. Forecasting*, 20, 149-160.

Ludwig, F., J. Horel, C. D. Whiteman, 2004: Using EOF analysis to identify important surface wind patterns in mountain valleys. J. Appl. Meteor., 7, 969-983.

Clements, C. B., C. D. Whiteman, J. D. Horel, 2003: Cold air pool structure and evolution in a mountain basin. J. Appl. Meteor. 42, 752-768.

Doran, C., J. Fast, J. Horel, 2002: The VTMX 2000 Campaign. Bull. Amer. Meteor. Soc., 83, 537- 551.

Lazarus, S., C. Ciliberti, J. Horel, K. Brewster, 2002: Near-real-time Applications of a Mesoscale Analysis System to Complex Terrain. Wea. Forecasting, 17, 971-1000.

Horel, J., T. Potter, L. Dunn, W. J. Steenburgh, M. Eubank, M. Splitt, and D. J. Onton, 2002: Weather support for the 2002 Winter Olympic and Paralympic Games. Bull. Amer. Meteor. Soc., 83, 227-240

Horel, J., M. Splitt, L. Dunn, J. Pechmann, B. White, C. Ciliberti, S. Lazarus, J. Slemmer, D. Zaff, J. Burks, 2002: MesoWest: Cooperative Mesonets in the Western United States. Bull. Amer. Meteor. Soc., 83, 211-226.

Schultz, D. M., W. J. Steenburgh, R. J. Trapp, J. Horel, D. E. Kingsmill, L. B. Dunn, W. D. Rust, L. Cheng, A. Bansemer, J. Cox, J. Daugherty, D. P. Jorgensen, J. Meitin, L. Sho well, B. F. Smull, K. Tarp, and M. Trainor, 2002: Understanding Utah winter storms: The Intermountain Precipitation Experiment. Bull. Amer. Meteor. Soc., 83, 189-210.

White, Bryan G., Paegle, Jan, Steenburgh, W. James, Horel, John D., Swanson, Robert T., Cook, Louis K., Onton, Daryl J., Miles,John G. 1999: Short-Term Forecast Validation of Six Models.Wea. Forecasting. 14, 84-108.

Waldron, Kim M., Paegle, Jan, Horel, John D. 1996: Sensitivity of a Spectrally Filtered and Nudged Limited-Area Model to Outer Model Options. Mon. Wea. Rev., 124, 529-552.

Dunn, Lawrence B., Horel, John D. 1994: Prediction of Central Arizona Convection. Part II: Further Examination of the Eta Model Forecasts.Wea. Forecasting, 9, 508-521.

Dunn, Lawrence B., Horel, John D. 1994: Prediction of Central Arizona Convection. Part I: Evaluation of the NGM and Eta Model Precipitation Forecasts.Wea. Forecasting, 9, 495-507.

Horel, John D., Gibson, Chris V. 1994: Analysis and Simulation of a Winter Storm over Utah. Wea.Forecasting. 9, 479- 494.

Horel, John D., Pechmann, Judith B., Geisler, John E., Hahmann, Andrea N. 1994: Simulations of the Amazon Basin Circulation with a Regional Model.J. Climate. 7, 56-71.

Berbery, Ernesto H., Nogues-Paegle, Julia, Horel, John D. 1992: Wavelike Southern Hemisphere Extratropical Teleconnections.J. Atmos. Sci., 49, 155-177.

Sassen, Kenneth, Horel, John D. 1990: Polarization Lidar and Synoptic Analyses of an Unusual Volcanic Aerosol Cloud. J. Atmos. Sci. 47, 2881-2889.

Barker, Timothy W., Horel, John D. 1989: The Impact of Climatology and Systematic Errors upon the Skill of DERF Forecasts. Mon. Wea. Rev., 117, 2835-2842.

Horel, John D., Hahmann, Andrea N., Geisler, John E. 1989: An investigation of the Annual Cycle of Convective Activity over the Tropical Americas. J. Climate, 2, 1388-1403.

Horel, John D., Staley, Lloyd R., Barker, Timothy W. 1988: The University of Utah Interactive Dynamics Program- One Approach to Interactive Access and Storage of Meteorological Data. Bull. Amer. Meteor. Soc., 69, 1321-1327.

Horel, John D., Mechoso, Carlos R. 1988: Observed and Simulated Intraseasonal Variability of the Wintertime Planetary Circulation.J. Climate, 1, 582-599.

Barker, Timothy W., Horel, John D. 1988: Quasi-Stationary Regimes in the Northern Hemisphere of the NCAR Community Climate Model.J. Climate, 1, 406- 417.

Horel, John D., Cornejo-Garrido, Angel G. 1986: *Convection along the Coast of Northern Peru during 1983: Spatial and Temporal Variation of Clouds and Rainfall. Mon. Wea. Rev., 114, 2091-2105.

Horel, John D. 1985: Persistence of Wintertime 500 mb Height Anomalies over the Central Pacific. Mon. Wea. Rev., 113, 2043-2048.

Horel, John D. 1985: Persistence of the 500 mb Height Field during Northern Hemisphere Winter. Mon. Wea. Rev., 113, 2030-2042.

Horel, J. D. 1984: Complex Principal Component Analysis: Theory and Examples.J. Appl. Meteor., 23, 1660-1673.

Van Den Dool, H.M., Horel, J.D. 1984: An Attempt to Estimate the Thermal Resistance of the Upper Ocean to Climatic Change. J. Atmos. Sci., 41, 1601-1612.

Horel, John D. 1982: On the Annual Cycle of the Tropical Pacific Atmosphere and Ocean. Mon. Wea. Rev., 110, 1863-1878.

Horel, John D., Wallace, John M. 1982: Reply. Mon. Wea. Rev., 10, 1497-1497.

Horel, John D. 1981: A Rotated Principal Component Analysis of the Interannual Variability of the Northern Hemisphere 500 mb Height Field. Mon. Wea. Rev., 109, 2080-2092.

Horel, John D., Wallace, John M. 1981: Planetary-Scale Atmospheric Phenomena Associated with the Southern Oscillation. Mon. Wea. Rev., 109, 813-829.

GRADUATE STUDENTS (area of employment)

- Current: E. Crosman, L. Jones, B. Olsen, D. Tyndall
- D. Myrick, 2006, Ph.D. (NWS)
- E. Crosman, 2005, M.S. (student)
- D. Zumpfe, 2004. M.S. (NWS)
- D. Myrick, 2003. M.S. (NWS)
- L. Holland, 2002. M.S. (NCAR)
- L. Cheng, 2002. M.S. (NWS)
- C. Clements, 2001. M.S. (Faculty SJSU)
- R. Swanson, 1998. Ph.D. (Air Force)
- J. Slemmer, 1998. M.S (NWS)
- A. Haynes, 1998. M.S. (NWS)
- B. McDonald, 1998. Ph.D. (NWS)
- J. Stiff, 1997. M.S. (Broadcasting)
- M. Braby, 1997. M.S. (Commercial firm)
- J. Mittelstadt, 1995. Ph.D. (NWS)
- R. Swanson, 1995. M.S. (Air Force)
- C. Gibson, 1993. M.S. (NWS)
- L. Dunn, 1993. Ph.D. (NWS)
- A. Hahmann, 1992. Ph.D. (NCAR)
- T. Barker, 1991. Ph.D. (NWS)
- C. Jones, 1990. M.S. (Research Faculty UCSB)

SELECTED PROFESSIONAL ACTIVITIES

- Co-chair. WAF/NWP AMS Conference. June 2007
- Member. WAF/NWP statement writing team. 2007
- Covenor. Thirteenth Workshop on Weather Prediction in the Intermountain West. Nov. 2006

- Clarus Quality Checking Task Force. Federal Highway Administration. May 2006.
- Department Review Panel. Department of Atmospheric and Environmental Science. Creighton University. April 2005.
- Co-Chair. Mesoscale Analysis Committee. National Weather Service Office of Science and Technology. 2004-present.
- Member of NSF LEAD external advisory panel 2004-present (Chair 2006-present)
- Member of the Scripps Experimental Climate Prediction Center advisory panel 1999-present
- Covenor and Co-Covenor of First-Ninth Workshops on Weather Prediction in the Intermountain West (1994-2002)
- Member of external 10-year institutional review panel for the Desert Research Institute 2002
- Contributor to Olympic Weather Support Team for the 2002 Winter Olympic and Paralympic Games (1996-2002)
- Member of the U.S. CLIVAR Pan American Climate Studies Panel. 1999-2000
- Member of the Scientific Steering Group for the Pan American Climate Systems Program of the NOAA Office of Global Programs: 1994-1999
- Co-Lead Instructor UCAR/COMET COMAP Course. Summer 1997
- Member of the American Meteorological Society Panel on Climate Variations 1994-1997
- Member of the NCEP EMC review panel 1996
- Member of College of Mines and Earth Sciences committees (e.g., computer 1988-1993, committee chair 1991-1993; curriculum 2000-present; retention and promotion 1996-1998, 2001-2002, 2005-present)

RECENT INVITED PRESENTATIONS

- April 2007. National Weather Service SOO/DOH Workshop. Salt Lake City UT
- December & March 2006. COMET Olympic Winter Weather Training Course. Boulder CO
- July 2006. Instructor for COMET faculty course on instructional uses of multimedia. Boulder CO.
- July 2006. Empirical Models and Data Assimilation. Unidata Users Workshop. Boulder CO.
- March 2006. National Weather Service Western Region Climate Services Workshop. Salt Lake City, UT.
- February 2006: National Weather Service S591 Fire Meteorologist Training Course. Boise, ID
- October 2005: Department of Atmospheric Sciences. University of Washington
- March 2005: Department of Geography. University of Utah
- March 2005: Western Region National Weather Service. Meteorologist in Charge Workshop. Portland OR
- March 2005: Department of Atmospheric Sciences. Texas A&M

- February 2005: Western Region National Weather Service. Science and Operations Officer Workshop. Salt Lake City UT
- September 2004: University of Oklahoma. College of Meteorology
- June 2004: NWS/UCAR COMET course on boundary layer meteorology
- March 2004: National Fire Weather Course- S591
- March 2004: Incident Meteorologist Workshop
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FEDERAL AND OTHER RESEARCH SUPPORT DURING THE PAST TEN YEARS

Cooperative Institute for Regional Prediction. Agency: NOAA. Total amount: $375,000. Period covered: July 2007-June2010. (Co-PIs J. Steenburgh, D. Whiteman).

Cooperative Institute for Regional Prediction. Agency: NOAA. Total amount: $375,000. Period covered: July 2004-June 2007. (Co-PI J. Steenburgh)

Development of a Nationwide, Weather Observation Monitor for Fire Weather Applications. Agency: BLM. Total amount: $720,000. Period covered: July 2002-Sep 2007

CIRP Consortium: Contributions from government and private sources.

Climate Applications of MesoWest. U/Utah VP for Research Seed funding. $33,500. 1/06-12/06

Weather and Climate Variations Associated with the Great Salt Lake, NASA, $72000, 9/07-8/10

Utilization of MesoWest Data in the DHS Biological Warning Incident Program. $30000, 3/06-2/08

Improved Integration and Coordination between UDOT RWIS Program and the University of Utah MesoWest Program. Utah Department of Transportation, $50,000, 7/05-6/07.

Evaluation of the NCEP Regional Reanalyses over Complex Terrain. Agency: NOAA Office of Global Programs. Total amount: $245,897. Period covered: March 2004-February 2007. (Co-PI J. Steenburgh, W. Cheng)

Cooperative Institute for Regional Prediction. Agency: NOAA. Total amount: $500,000. Period covered: January 2000-June 2004. (Co-PI T. Potter, J. Steenburgh)

Analysis of the Planetary Boundary Layer in an Urban Valley. Agency: DOE. Total amount: $378,000. Period covered: Nov. 1999-Oct. 2004. (Co-PI S. Lazarus)

Planning Weather Support for the 2002 Winter Olympics. Agency: NOAA. Total amount: $380,000. 4/00-3/02. (Co-PI T. Potter, J. Steenburgh)

Mesoscale Modeling Studies of Warm Season Rainfall in the PACS Domain. Agency: NOAA OGP. Total amount: $171,686. Period covered: March 1998-March 2000. (Co-PI J. Steenburgh)

Evaluation and Application of the Eta Adjoint Model. Agency: NSF. Total amount: $105,900. Period covered: June 1996-May 1998.

Regional Climate Simulations over the Tropical Americas. Agency: NOAA. Award amount: $171,000. Award dates: May 1995-April 1997. (Co-PI J. Pechmann)